Reviewer's report

Title: Perception and management of fever in infants up to six months of age: A survey of US pediatricians

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Reviewer: Elena Chiappini

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Authors have explored the perception and management of fever in infants by interviewing 400 US pediatricians, through a web-based survey.

The question posed is well-defined and relevant since the management of fever in infants is a hot topic and controversies exist at this regard.

The authors’ main finding is that the perception and management of fever severity varies, according to the child’s age, previous recent immunization, and even if fever occurs during office hours or not.

Even if most paediatricians reported to follow the AAP guidelines and, correctly, usually explain to parents how to manage fever during routine visits, the survey’s results strongly suggest that implementation of educational programs regarding the proper management of the febrile child is needed. This message should be stressed in the discussion section.

Major concerns

Major concern is that it seems implied that the study refers to a hypothetical well-appearing infant with a fever without a source, but this should be specified.

Another concern is that in the manuscript is focused on the definition of fever severity based on its level and infant’s age. Although in special circumstances high fever may be a predictive factor for severe bacterial infection (such as a high white blood cell count or high levels of C-reactive protein), especially in children under three months of age, in itself, the degree of fever should not be taken as an indicator of the risk for severe disease (Chiappini E et al. Clin Ther 2009;31:1826-43). Some studies in children have found a correlation between a body temperature >41.1°C and the risk of bacteremia and invasive bacterial infection, whereas others have not. Taken alone, a high body temperature(>39°C) has very low sensitivity and specificity for severe bacterial infection. This is a limit of the study and should be specified.

Introduction
Definition of fever is oversimplified. It should be specified that it is an elevation of the body temperature above the normal range secondary to a modification of the thermoregulatory center set-point in the hypothalamus.

The sentence “ACIP recommend administration of up to 9 different vaccine antigens during the six months of life”, although true, may sustain the misconception that many vaccines are dangerous and may overload or weak the infant immune system. Pediatricians must play a central role in correcting this misconception and should educate worried parents regarding vaccine safety.

It should be noticed that fever after immunization is a common event but high fever (greater than 39.5°C) is an exceptional event occurring in 1% of infants (Prymula R. Lancet 2009;374:1339-50). This observation should be taken into account when examining an infant with high fever after immunization because this child is at high risk of infection and should be appropriately managed. The message that infants with fever after immunization are at low risk of infection may be confounding.

When summarizing practice guidelines for the management and treatment of febrile infants (page 5, line 19) other references should included in the list besides the US guidelines (i.e. NICE guidelines, WHO guidelines,)

Methods

It should be specified how fever would be recorded (site and thermometer type) and if the survey refers to a well-appearing infant with a fever without a source.

Randomization method is not described. Please provide details regarding the procedures you used to obtain random samples of pediatricians.

Results

Page 10, last line. Age should be better expressed as median and interquartile range instead of mean and standard deviation.

Figure 1 is clear but for more clarity we suggest to report the proportion of pediatricians answers (and respective 95% CIs) in the text or in one table since it does not appear anywhere.

Discussion

Discussion should be expanded.

It should be underlined that these results may have practical implication for the organization of the emergency department in not-office hours and that educational programs for the management of fever in infants are needed in US.

It should be also focused what is the authors’ opinion regarding the different approach to the infant with fever according to his/her recent previous immunization status (i.e.: this strategy may pose the infant at risk since he/her may have a severe bacterial infection and diagnosed may be delayed). It should
be stressed the concept that high fever after immunization is rare (about 1% of cases) and these infants are at risk of a bacterial infection.

Also it should be noticed that the workup of these infants should include at least an urine test and that all febrile newborns (aged < 28 days) should be always hospitalized.


Generally, the use of antipyretics in children is recommended only when the fever is associated with evident discomfort (eg, prolonged crying, irritability, reduced activity, reduced appetite, disturbed sleep) and not for a given level.

The fact that response to antipyretics is not a predictive factor for the cause of fever should be also remembered here.

Conclusions also should be focused on the need of implementing educational programs for US pediatricians in order to reduce fever-phobia but also to manage properly febrile infants.

Table 1.

Heading is no clear to the reader. (N/Mead; %/SD?). I suggest to summarize results in one column (i.e. Mean and SD or, better, median and interquartile range)

Minor essential revisions:

Abstract

95% Confidence interval should be abbreviated as 95%CI not CI

Introduction

Page 6, lines 3-6 need a reference. The paper by Chiappini et al (BMC Public Health 2009;9:300) demonstrating that the approach to the febrile child may be influenced by his/her PCV vaccination status, is in contrast with guidelines recommendations, should be cited here.

Page 6, line 4. Bacteria’s names should be written in Italics and correctly (i.e.:Streptococcus pneumoniae)

Page 6, line 10. Perception of fever according to internal body temperature: internal BD is not routinely measured but it is estimated by the use of
thermometers placed rectally, axillary,…. Perhaps the word “internal” should be eliminated.

Methods
The first time the word “confidence interval” is used should be followed by its abbreviation (95%CI page 9 last line) and afterwards the abbreviation should be used.

Results
Please specify the proportion of paediatricians who answered to survey out of the total number of paediatricians who were contacted (401/17392= 2.3%).

Discretionary revisions
Introduction
Fever phobia among parents is a major issue. It should be remembered that physicians may contribute to reduce it educating the family and illustrating that fever is a normal physiologic response to an infection and should give detailed information regarding how to manage it.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests